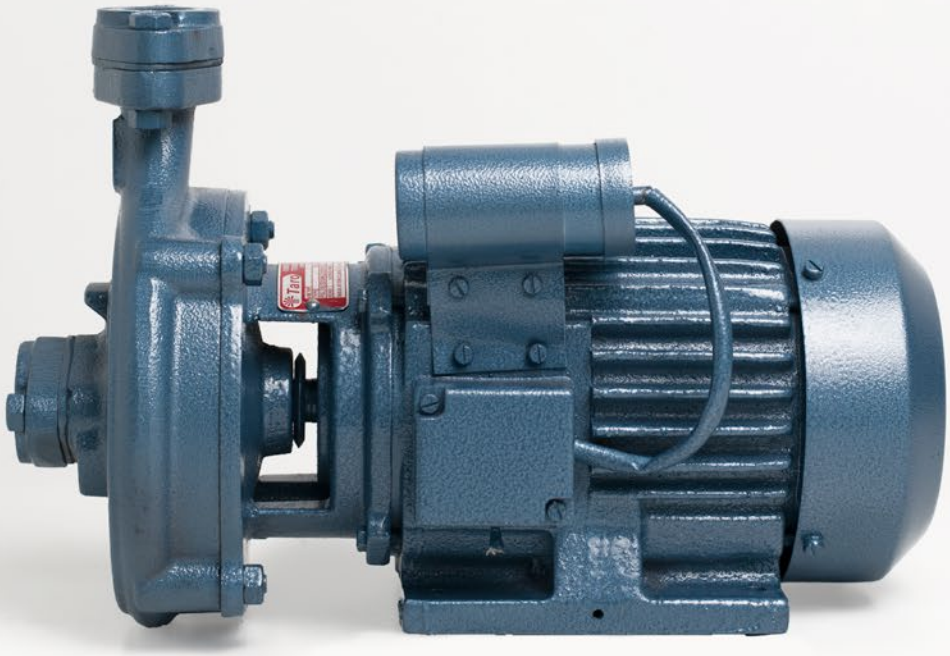
Single Phase Capacitor Start and Run High Speed Centrifugal Monoblocks

Troubleshooting Guide



Taro™ Pumps

Texmo Industries
Est. 1956

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1. Basic troubleshooting

Warning

To prevent serious accidents, disconnect the power supply before inspecting the pump.

Read this Operation manual carefully before requesting repair. Contact the dealer where this equipment was purchased. Servicing and troubleshooting must be handled by qualified persons with proper tools and equipment. Common faults, root cause for these and suggested actions are provided in TABLE 1 below:

Fault	**Possible causes**	**Suggested actions**
Pump does not run	No power supply	Check incoming power supply and rectify
	Very low voltage	Operate in the recommended voltage range
	Impeller stuck	Remove the fan cover and rotate fan by hand
	Defective Capacitor	Replace Capacitor
	Loose connections	Check the connections
	Fuse blown	Replace fuse
Pump does not discharge water	Motor tripping by T.O.P	Allow the motor to cool
	Pump has been kept for long time	Ensure free rotation of shaft by running the pump idle for a few minutes at least every alternate day
	Air leakage on the suction side	Check and correct for leakages
	Suction lift too high	Reduce the suction lift
	Foot valve not sufficiently submerged	Lower the foot valve and ensure that the foot valve is submerged at least 1 metre below the free surface of water
	Check valve is jammed	Check and replace
	Motor coil burnt	Rewind the motor
	Low voltage operation	Operate in the recommended voltage range

Fault	Possible causes	Suggested actions
Less discharge from pump	Low voltage operation	Operate in the recommended voltage range
	Wrong direction of rotation	Repair in the nearest authorised service center
	Static suction lift high	Position the pump within recommended suction lift
	Total head higher than specified head	Ensure delivery head within specified value
	Leaky pipes	Check the piping system and rectify the faults
	Smaller pipe size used when compared to name plate recommendations	Use recommended size of pipes
	Discharge pipe internally coated with depositions	Clean the pipe
	Foreign bodies lodged in impellers	Check the impellers and remove the foreign bodies
	The valve in the discharge pipe is partly closed / blocked	Check and clean / replace the valves, if necessary
	The Check valve of the pump is partly blocked.	Check and clean Check valve. Replace if necessary
	Impeller is worn out	Check and replace
Excessive current / Fuse blows off frequently	Low voltage	Check the voltage
	Gate valve is partially closed	Check and open the delivery side valve fully
	Defective fuse	Check and replace / rectify the fuse
	Defective motor winding	Change the winding
	Bearing worn-out	Replace bearings
	Decreased system head	Throttle the discharge slightly
	Excessive wear and tear due to rubbing of parts	Service the pump replacing the worn out parts

Fault	Possible causes	Suggested actions
Pump runs rough and noisy	Bearings worn out	Dismantle and replace worn out bearings
	Pump cavitating due to high suction lift	Reduce static suction lift
	Pump not grouted	Grout the pump
	Rotor shaft is bent resulting in rotor rubbing against stator bore	Replace rotor shaft
	Excessive wear and tear	Check impeller if required replace the impeller. Check rotor run out at location of impeller. If excessive, replace rotor
Pump leaks excessively	Mechanical seal damaged	Replace mechanical seal
	Pipe line damaged	Check and replace piping

 Note	Conduct trial operation after maintenance
 Note	Dispose replaced components with appropriate care so as to protect the environment
 Warning	Do not try to solve unspecified troubles of monoblock as it may lead to severe damage to the pump or injury to personnel. Contact the dealer where this pump was purchased

2. Preventive maintenance checks

Precautions to be taken

 Warning	Disconnect the power supply before starting maintenance or inspection of the pump to avoid electrical shock
 Note	If you find any damages or abnormalities, switch OFF the pump and report the problem to the dealer from whom the set was purchased

NOTE: The manufacturer assumes no responsibility for damage or injury due to disassembly in the field.

A definite schedule of preventive maintenance inspections should be established to avoid breakdown, serious damage and extensive downtime. The schedule will depend on operating conditions and experience with similar equipment. Below check list does not represent an exhaustive survey of maintenance steps necessary to ensure safe operation of the monoblock.

 Warning	The pump must not be operated with the delivery valve shut-off for more than a few seconds; otherwise the motor will overheat, possibly causing permanent damage
 Warning	Utilise the services of an electrician to carry out electrical measurements / checking the functioning of the control panel

It is good practice to monitor the conditions and performance of the monoblock. Diagnosis may be carried out by checking the following:

- Close the delivery valve for a few seconds and check the shut-off head generated by the pump. Do not run at shut-off conditions for a prolonged period of time as the water in the volute casing will get hot
- Check the current drawn by the pump at the duty flow rate
- Both these data should be compared to corresponding data recorded when the unit was initially installed
- Any reduction in shut-off head may indicate wear of the pump hydraulics
- Any increase in motor current at duty flow rate indicates a possible overload condition
- Measure the insulation resistance of the winding to check the condition of the motor
- Check for leakage from the mechanical seal location
- Check the capacitance of the capacitor

3. Do’s and don’ts

Do’s	Don’ts
Use a quality foot valve	Do not install the pump with high static suction lift
Ensure leak proof joints on the suction side to prevent air entry and therefore loss of priming	Do not use piping smaller than what is mentioned on the name plate
Use as few joints as possible on the suction line	Provide sufficient space around the monoblock so as to ensure proper airflow
After installation, prime the pump	Restrict the number of joints on the cable. More the cable joints, more will be the voltage drop
Rotate the shaft to ensure that pump is not jammed	Do not place the foot valve right near the bottom of the well / tank / river as there is possibility for solids to be entrained with water
Ensure proper earthing is provided	Do not restrict the space behind the cooling cover as this will obstruct the flow of air required for cooling of the motor
Mount the monoblock on a level foundation	Do not use to pump corrosive and flammable liquids
Check the direction of rotation of the monoblock matches the arrow mark cast on the volute casing	Do not earth to a water line or gas line
Rubber gaskets assembled on the suction and delivery casing do not have a central hole. Cut out the central hole and re-install	Do not use undersized electric cables between Pump and Starter Panel. Factor in low voltage usage
Check all fasteners are tight	Do not cover the product as this will prevent effective cooling of the motor
Motor portion of monoblock is IP44 protected. Provide protection from rain	Do not keep the pump suction tapering down towards the pump suction to prevent air lock

4. Important safety instructions

Only qualified personnel should be involved for inspection, maintenance and repairs. The successful and safe operation of such a product depends on proper handling, installation and maintenance. It is suggested that in case of non-functioning of the product, the customer is requested to contact the dealer through whom the purchase was made.

Danger

Hazardous voltage will cause death, serious injury, electrocution.
Disconnect all power before working on this equipment.
Maintenance should be performed by only qualified personnel.

5. Storage & Handling

- The Single Phase capacitor start and run high speed monoblocks are supplied from the factory in proper packing in which they should remain until they are to be installed
- The product should be stored in a closed, dry and well - ventilated room
- Do not store the products in direct sunlight
- Handle the pumps with care and do not expose the product to unnecessary impact and shocks
- During unpacking and prior to installation, care must be taken when handling the pump to ensure that the product is not subjected to shock loads
- If the product has been stored for a very long period, check the condition of the rubber components like suction and delivery flange gaskets and those with the mechanical seal

 Caution	If the motors are stored, the shaft must be turned by hand at least once a month
 Caution	If the motor has been stored for more than one year before installation, dismantle the motor and check the rotating parts before use
 Caution	After a long period of storage, the pump should be inspected before it is put in operation. Ensure the impeller can rotate freely when turned by hand
 Caution	The volute casing houses a mechanical seal. Do not attempt to run the pump dry as the mechanical seal can get damaged. Ensure the pump is primed and then only run it

6. Company contact information

For most up to date information on Texmo Industries, please visit www.taropumps.com

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